

WHAT IS CLAIMED IS:

1. A data communication system, comprising:

a plurality of packet data servicing nodes operable to communicate with each other and each operable to store and manage a cluster session table, each cluster session table comprising a list of data communication sessions managed by packet data servicing nodes within the cluster; and

each packet data servicing node operable to receive requests for data communication sessions originating from mobile units serviced by the plurality of packet data servicing nodes and responsive to the receipt of such requests each packet data servicing node operable to access the cluster session table and to identify a packet data servicing node within the plurality to service the requested data communication session.

2. The system of Claim 1, wherein each packet data servicing node is operable to select one of the plurality of packet data servicing nodes to service the data communication session by accessing the cluster session table and using the information within the cluster session table to identify the packet data servicing node which is servicing the least number of data communication sessions at that particular time.

3. The method of Claim 1, wherein each packet data servicing node within the plurality is operable to generate a message to a base station controller requesting a data communication session, the message  
5 comprising an address of an identified packet data servicing node which has been identified by the packet data servicing node transmitting the message through the use of the cluster session table.

10 4. The method of Claim 3 wherein each packet data servicing node is operable to use the cluster session table to determine if as requested data session is already being serviced by a different packet data servicing node, and, if so, to direct the requesting base  
15 station controller to contact the identified servicing packet data servicing node.

20 5. The system of Claim 1, wherein each packet data servicing node within the plurality is operable to transmit at least a portion of the cluster session table to the remaining packet data servicing nodes within the plurality to allow for a resynchronization of the cluster session tables stored by each member of the plurality of packet data servicing nodes.

25 6. The system of Claim 5, wherein each packet data servicing node within the plurality is operable to transmit at least a portion of the local cluster session table on a periodic basis.

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7. The system of Claim 5, wherein each packet data servicing node within the plurality is operable to transmit at least a portion of the local cluster session table when requested by a one of the plurality of packet  
5 data servicing nodes upon the initialization of such requesting packet data servicing node.

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8. A method of managing a data communication session comprising:

receiving a request for a data communication session at a packet data servicing node;

5 accessing a cluster session table storing active sessions within a cluster of packet data servicing nodes including the packet data servicing node receiving the request;

10 identifying an appropriate packet data servicing node within the cluster to service the requested data communication session; and

transmitting a message to a base station controller requesting the data communication session, the message including an address for the identified appropriate  
15 packet data servicing node.

9. The method of Claim 8, wherein the step of identifying an appropriate packet data servicing node to service the data communication session comprises the step  
20 of identifying a packet data servicing node within the cluster which is already servicing the data communication session by identifying the mobile unit associated with the requested data communication session in an entry within the cluster session table.

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10. The method of Claim 8, wherein the step of identifying the appropriate packet data servicing node within the plurality comprises the step of identifying using the cluster session table the member of the cluster  
30 which is servicing the fewest number of data communication sessions at the time of the request.

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11. The method of Claim 8 and further comprising the steps of:

generating a session creation message comprising the identity of the mobile unit requesting the data  
5 communication session and the address associated with the packet data servicing node servicing the request; and

transmitting the session creation message to the remaining members of the cluster.

10 12. The method of Claim 11, wherein the step of transmitting the session creation message comprises the step of transmitting a plurality of session creation messages on a periodic basis.

15 13. The method of Claim 11, wherein the step of transmitting the session creation message comprises the step of transmitting the session creation message when a predetermined number of the session creation messages have been generated and stored.

20 14. The method of Claim 8 and further comprising the step of generating and transmitting a packet data servicing node keep-alive message from each member within the cluster to the remaining members of the cluster on a  
25 periodic basis such that each member of the cluster can monitor the continuing processing capability of each member of the cluster.



16. A method of managing a data communication session comprising:

receiving a request for a data communication session at a packet data servicing node;

5       accessing a cluster session table storing active sessions within a cluster of packet data servicing nodes including the packet data servicing node receiving the request;

10       identifying an appropriate packet data servicing node within the cluster to service the requested data communication session by identifying a packet data servicing node within the cluster which is already servicing the data communication session by identifying the mobile unit associated with the requested data  
15       communication session in an entry within the cluster session table; or identifying using the cluster session table the member of the cluster which is servicing the fewest number of data communication sessions at the time of the request if no preexisting session is identified;

20       transmitting a message to a base station controller requesting the data communication session, the message including an address for the identified appropriate packet data servicing node;

25       generating a message comprising the identity of the mobile unit requesting the data communication session and the address associated with the packet data servicing node servicing the request; and

transmitting the session creation message to the remaining members of the cluster.

17. The method of Claim 16, wherein the step of transmitting the session creation message comprises a step of transmitting a plurality of session creation messages on a periodic basis.

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18. The method of Claim 16, wherein the step of transmitting the session creation message comprises a step of transmitting the session creation message when a predetermined number of the session creation messages have been generated and stored.

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19. The method of Claim 16 and further comprising the step of generating and transmitting a packet data servicing node a keep-alive message from each member within the cluster to the remaining members of the cluster on a periodic basis such that each member of the cluster can monitor the continuing processing capability of each member of the cluster.

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20. The method of Claim 16 and further comprising the step of requesting a copy of the cluster session table from each member of the cluster upon the initialization of a member of the cluster.